

Bahrum Prang Rocky, Ph.D.

Analytical Materials Scientist III, BASF Corporation | Technical Leader | Microscopy & Failure Analysis Expert | R&D Specialist
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PROFESSIONAL SUMMARY

Results-driven Senior Materials Scientist with 14+ years of industry and research experience in advanced materials characterization, polymer/adhesive/coatings R&D, failure analysis, and cross-functional technical leadership. Expert problem-solver delivering 5,000+ analyses per year, resolving complex customer/product issues, and accelerating innovation across chemical and materials businesses. Strong track record securing \$5M+ funding, leading multi-disciplinary projects, and developing impactful technical solutions. Published 23 peer-reviewed papers with 300+ citations. Recognized with national research and teaching awards.

CORE TECHNICAL SKILLS

Materials Expertise: Polymers, coatings, fibers, textiles, composites, nanomaterials, metals/alloys

Analytical Techniques: SEM, TEM, Auger, SIMS, LM, EDS, FTIR, Raman, XRD, XPS, DSC, DMA, TGA, Rheology, UV-vis, AFM

R&D Strengths: DOE, product testing, RCA & failure analysis, formulation, structure-property analysis

Industry Applications: Adhesives, coatings, construction chemicals, packaging, polymers, fibers, nonwovens, textiles

Software: SolidWorks, AutoCAD, MATLAB, Python, Java, HTML, OriginPro, Minitab, Adobe & MS Office Suite

Collaboration: R&D, product development, customer interface, regulatory, safety, technical training

PROFESSIONAL EXPERIENCE

Analytical Scientist III — BASF Corporation | Charlotte, NC | 2023 – Present (3 Years+)

Deliver **5,000+ annual analytical investigations** to resolve critical RCA/FMEA issues, support R&D and customer escalations across adhesives, coatings, construction, packaging, and nonwovens; lead complex cross-functional **problem-solving** using advanced **microscopy, spectroscopy**, and thermal/mechanical analysis; develop SOP/JSA/SDS/TDS, and ensure full compliance with OSHA/EPA/FDA standards.

Company Focus: Adhesives, architectural coatings, asphalt, construction, fiber bonding, paper/printing, packaging.

Research Scientist II — University of Alabama | Tuscaloosa, AL | 2022 – 2023

Secured **\$5M+ funding** and led **five multidisciplinary** DOE-driven projects developing composites, alloys, and nanomaterials using chemical, thermomechanical, metallurgical, and nanotechnology methods; employed SEM, TEM, XRD, FTIR, Raman, XPS, DSC, and advanced CAD/CAE/software tools; delivered milestone-based **technical reports**, trained teams, and partnered with government and industry stakeholders on high-impact technical solutions.

Postdoctoral Research Scientist — University of Alabama | Tuscaloosa, AL | 2020 – 2022

Directed metals/alloys and textile-nanomaterials research, delivering **36 milestones**, reports, proposals, scientific **journals, and conference presentations** while collaborating with industry to optimize production processes, materials performance, and specialized equipment development.

Additional Roles

- **Research Assistant** (2015–2019): Led fiber and textile materials testing; developed new fiber systems.
- **Lecturer, Textile Engineering** (2013–2015): Taught 19 courses; mentored 1,000+ students.
- **QA Engineer** in Textile Dyeing Industry (2010–2012): Improved processes, quality systems, and customer satisfaction.

EDUCATION

Ph.D. in Materials Science & Metallurgical Engineering (2019) — University of Alabama, Tuscaloosa, USA

M.S. in Textile Engineering (2016) — University of Alabama, USA

B.S. in Textile Technology & Chemical Engineering (2009) — Bangladesh University of Textiles

Vocational Technology (V.Tech.) in Building Construction & Maintenance (2005) — Bangladesh Technical Education Board

SELECTED ACHIEVEMENTS

- 23 publications (17 first-author), 350+ citations
- ITAA Paper of Distinction (2021), Outstanding Doctoral Research Award (2019)
- Lean Six Sigma White Belt